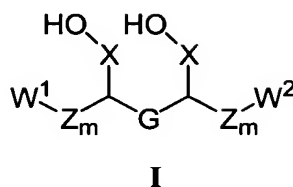


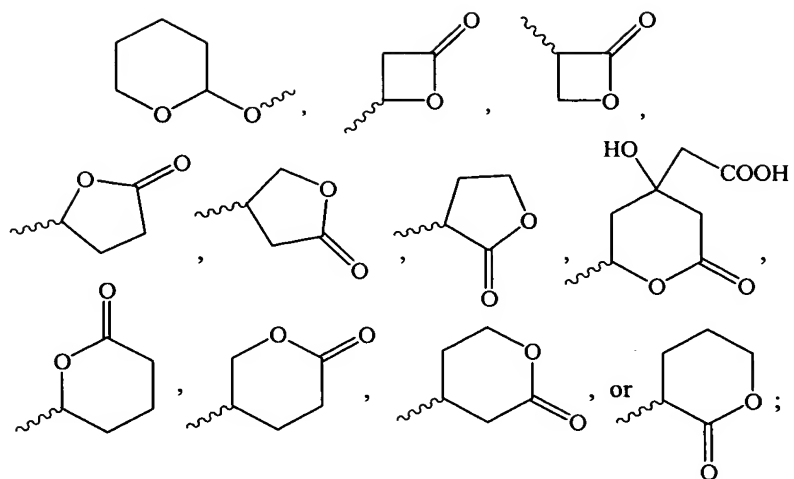
WHAT IS CLAIMED:

1. A compound of the formula I:

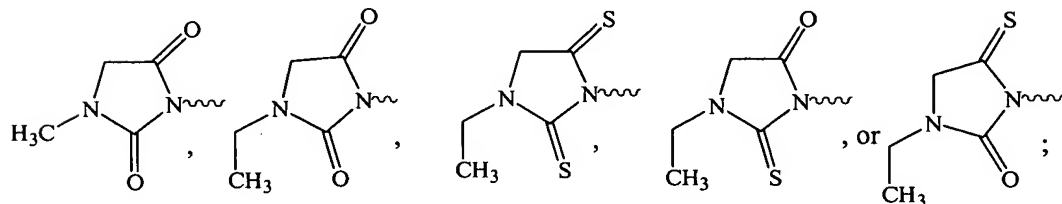
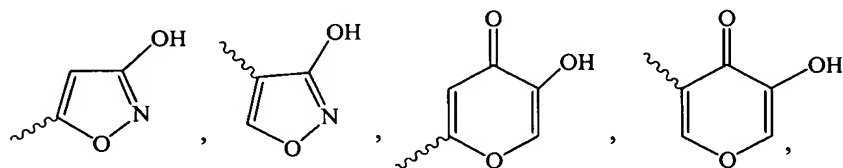
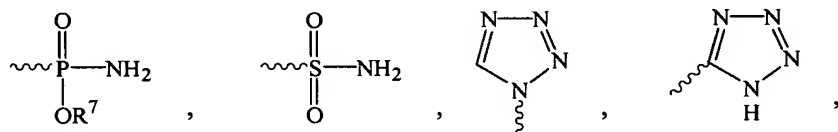
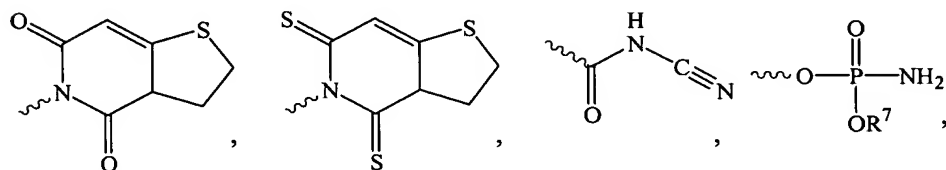
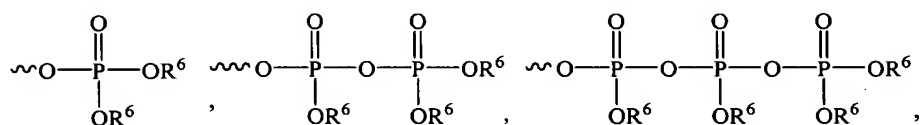


or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein

- 5 (a) each occurrence of Z is independently CH<sub>2</sub>, CH=CH, or phenyl, where each occurrence of m is independently an integer ranging from 1 to 9, but when Z is phenyl then m is 1;
- (b) G is (CH<sub>2</sub>)<sub>x</sub>, where x is 1-7, CH<sub>2</sub>CH=CHCH<sub>2</sub>, CH=CH, CH<sub>2</sub>-phenyl-CH<sub>2</sub>, or phenyl;
- 10 (c) W<sup>1</sup> and W<sup>2</sup> are independently L, V, C(R<sup>1</sup>)(R<sup>2</sup>)-(CH<sub>2</sub>)<sub>c</sub>-C(R<sup>3</sup>)(R<sup>4</sup>)-(CH<sub>2</sub>)<sub>n</sub>-Y, or C(R<sup>1</sup>)(R<sup>2</sup>)-(CH<sub>2</sub>)<sub>c</sub>-V where c is 1 or 2 and n is an integer ranging from 0 to 7;
- (d) each occurrence of R<sup>1</sup> or R<sup>2</sup> is independently (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>2</sub>-C<sub>6</sub>)alkenyl, (C<sub>2</sub>-C<sub>6</sub>)alkynyl, phenyl, or benzyl or when one or both of W<sup>1</sup> and W<sup>2</sup> is C(R<sup>1</sup>)(R<sup>2</sup>)-(CH<sub>2</sub>)<sub>c</sub>-C(R<sup>3</sup>)(R<sup>4</sup>)-(CH<sub>2</sub>)<sub>n</sub>-Y, then R<sup>1</sup> and R<sup>2</sup> can both be H to form a methylene group; or R<sup>1</sup> and R<sup>2</sup> and the carbon to which they are both attached are taken
- 15 together to form a (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl group;
- (e) R<sup>3</sup> is H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>2</sub>-C<sub>6</sub>)alkenyl, (C<sub>2</sub>-C<sub>6</sub>)alkynyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, phenyl, benzyl, Cl, Br, CN, NO<sub>2</sub>, or CF<sub>3</sub>;
- (f) R<sup>4</sup> is OH, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>2</sub>-C<sub>6</sub>)alkenyl, (C<sub>2</sub>-C<sub>6</sub>)alkynyl, (C<sub>1</sub>-C<sub>6</sub>)alkoxy, phenyl, benzyl, Cl, Br, CN, NO<sub>2</sub>, or CF<sub>3</sub>;
- 20 (g) L is C(R<sup>1</sup>)(R<sup>2</sup>)-(CH<sub>2</sub>)<sub>n</sub>-Y, wherein n is an integer from 0 to 5;
- (h) V is:



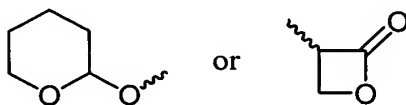
(i) each occurrence of Y is independently (C<sub>1</sub>-C<sub>6</sub>)alkyl, OH, COOH, COOR<sup>5</sup>, SO<sub>3</sub>H,



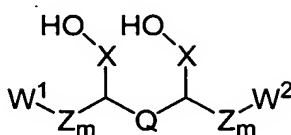
wherein:

- (i)  $R^5$  is  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl,  $(C_2-C_6)$ alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH,  $(C_1-C_6)$ alkoxy, or phenyl groups,
- (ii) each occurrence of  $R^6$  is independently H,  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl, or  $(C_2-C_6)$ alkynyl and is unsubstituted or substituted with one or two halo, OH,  $(C_1-C_6)$  alkoxy, or phenyl groups;
- (iii) each occurrence of  $R^7$  is independently H,  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl, or  $(C_2-C_6)$ alkynyl; and
- (j) X is  $(CH_2)_z$  or Ph, wherein z is an integer from 0 to 4.

2. The compound of claim 1, wherein G is  $(CH_2)_2$ .
3. The compound of claim 1, wherein each occurrence of  $Z_m$  is independently  $(CH_2)$  and m is 1-4.
4. The compound of claim 1, wherein each occurrence of  $W^1$  and  $W^2$  is independently L.
5. The compound of claim 2, wherein L is  $C(CH_3)_2-(CH_2)-OH$
6. The compound of claim 1, wherein each occurrence of  $W^1$  and  $W^2$  is independently V.
7. The compound of claim 6, wherein V is

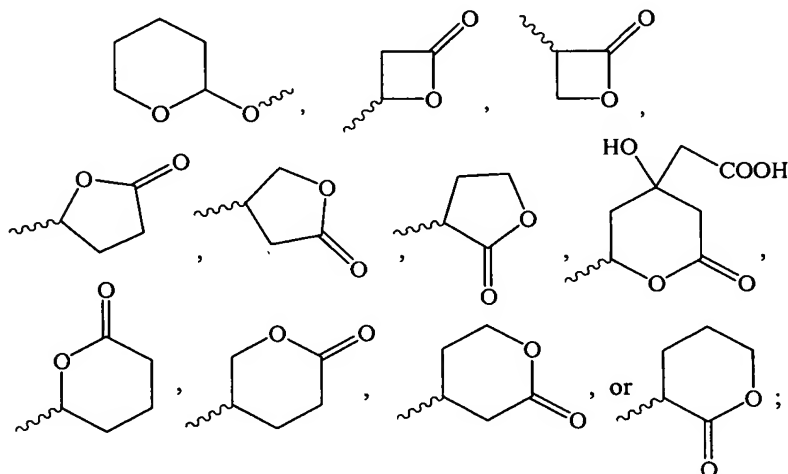


8. A compound of the formula II:

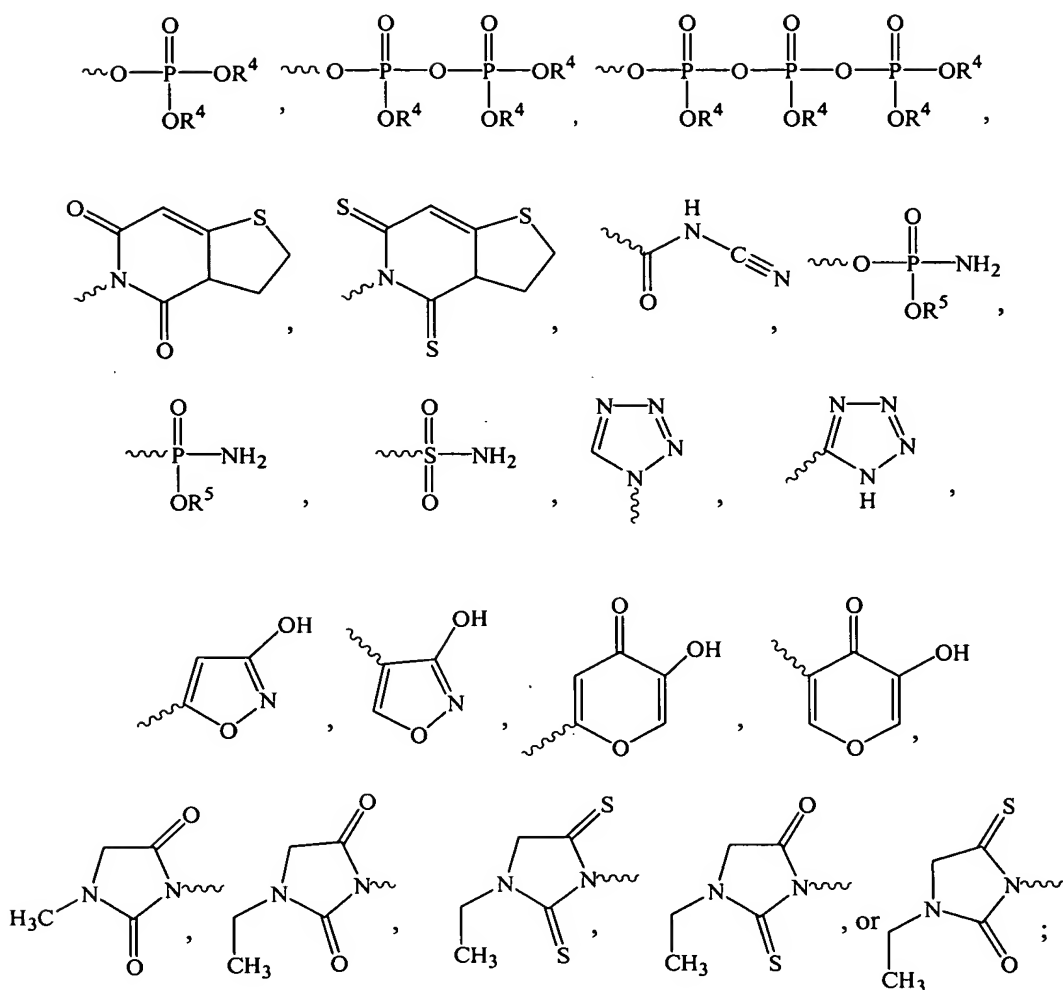


II

- 5 or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein:
- (a) each occurrence of Z is independently  $\text{CH}_2$  or  $\text{CH}=\text{CH}$ , wherein each occurrence of m is independently an integer ranging from 1 to 9;
  - (b) Q is  $(\text{CH}_2)_x$ ,  $\text{CH}_2\text{CH}=\text{CHCH}_2$ , or  $\text{CH}=\text{CH}$ , where x is 2, 3, or 4;
  - (c)  $\text{W}^1$  and  $\text{W}^2$  are independently L, V, or  $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_c\text{V}$ , where c is 1 or 2;
  - 10 (d) each occurrence of  $\text{R}^1$  and  $\text{R}^2$  is independently  $(\text{C}_1\text{-C}_6)$ alkyl,  $(\text{C}_2\text{-C}_6)$ alkenyl,  $(\text{C}_2\text{-C}_6)$ alkynyl, phenyl, benzyl, or  $\text{R}^1$  and  $\text{R}^2$  and the carbon to which they are both attached are taken together to form a  $(\text{C}_3\text{-C}_7)$ cycloalkyl group;
  - (e) L is  $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_n\text{Y}$ , where n is an integer ranging from 0 to 5;
  - (f) V is:



- (g) each occurrence of Y is independently  $(\text{C}_1\text{-C}_6)$ alkyl, OH, COOH,  $\text{COOR}^3$ ,  $\text{SO}_3\text{H}$ ,



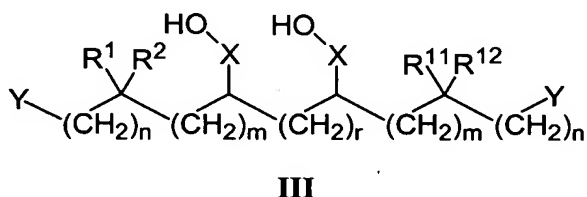
wherein:

- 5 (i)  $\text{R}^3$  is  $(\text{C}_1\text{-C}_6)$ alkyl,  $(\text{C}_2\text{-C}_6)$ alkenyl,  $(\text{C}_2\text{-C}_6)$ alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH,  $(\text{C}_1\text{-C}_6)$ alkoxy, or phenyl groups,
- (ii) each occurrence of  $\text{R}^4$  is independently H,  $(\text{C}_1\text{-C}_6)$ alkyl,  $(\text{C}_2\text{-C}_6)$ alkenyl, or  $(\text{C}_2\text{-C}_6)$ alkynyl and is unsubstituted or substituted with one or two halo, OH,  $(\text{C}_1\text{-C}_6)$ alkoxy, or phenyl groups; and
- 10 (iii) each occurrence of  $\text{R}^5$  is independently H,  $(\text{C}_1\text{-C}_6)$ alkyl,  $(\text{C}_2\text{-C}_6)$ alkenyl, or  $(\text{C}_2\text{-C}_6)$ alkynyl.

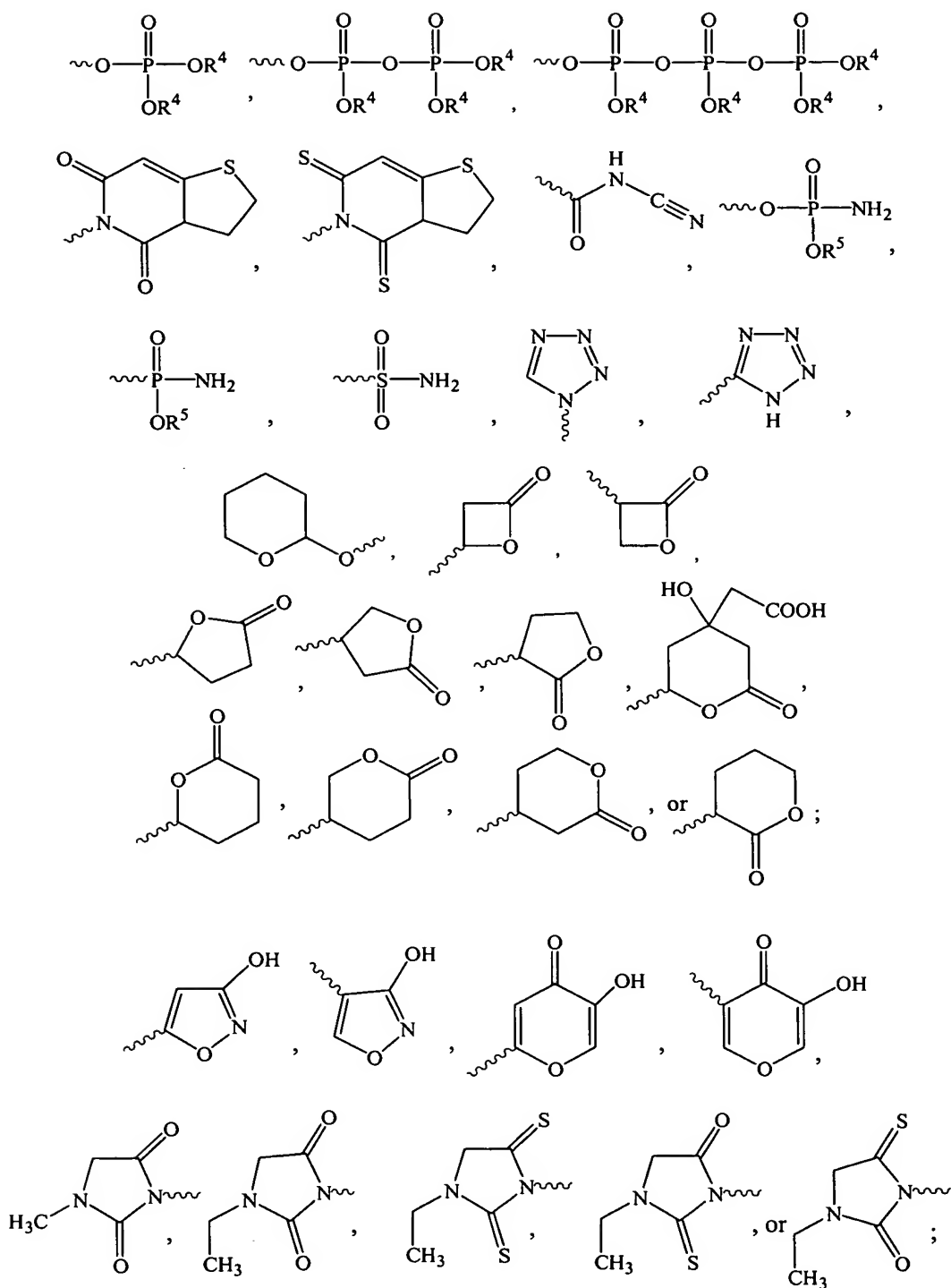
9. The compound of claim 8, wherein each occurrence of  $\text{W}^1$  and  $\text{W}^2$  is independently L.

10. The compound of claim 9, wherein L is  $\text{C}(\text{CH}_3)_2\text{-(CH}_2)_n\text{-Y}$ .

11. The compound of claim 10, wherein each occurrence of Y is independently OH, COOR<sup>7</sup>, or COOH.
12. The compound of claim 8, wherein Q is CH=CH..
13. The compound of claim 8, wherein Z<sub>m</sub> is CH<sub>2</sub> and m is 1-3.
- 5 14. The compound of claim 8, wherein each of W<sup>1</sup> and W<sup>2</sup> is independently C(R<sup>1</sup>)(R<sup>2</sup>)-(CH<sub>2</sub>)<sub>x</sub>-V.
15. The compound of claim 14, wherein R<sup>1</sup> and R<sup>2</sup> are each independently (C<sub>1</sub>-C<sub>6</sub>) alkyl.
16. The compound of claim 15, wherein R<sup>1</sup> and R<sup>2</sup> are each methyl.
- 10 17. A compound of the formula **III**



- or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein:
- (a) each occurrence of m is independently an integer ranging from 1 to 9;
- 15 (b) r is 2, 3, or 4;
- (c) each occurrence of n is independently an integer ranging from 0 to 7;
- (d) each occurrence of R<sup>1</sup>, R<sup>2</sup>, R<sup>11</sup>, and R<sup>12</sup> is independently (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>2</sub>-C<sub>6</sub>)alkenyl, (C<sub>2</sub>-C<sub>6</sub>)alkynyl, phenyl, benzyl, or R<sup>1</sup> and R<sup>2</sup> and the carbon to which they are both attached are taken together to form a (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl group, or R<sup>11</sup> and R<sup>12</sup> and the carbon to which they are both attached are taken together to form a (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl group; and
- 20 (e) each occurrence of Y is independently (C<sub>1</sub>-C<sub>6</sub>)alkyl, OH, COOH, COOR<sup>3</sup>, SO<sub>3</sub>H,



5

wherein:

(i)  $R^3$  is  $(\text{C}_1\text{-C}_6)$ alkyl,  $(\text{C}_2\text{-C}_6)$ alkenyl,  $(\text{C}_2\text{-C}_6)$ alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH,  $(\text{C}_1\text{-C}_6)$ alkoxy, or phenyl groups,

5

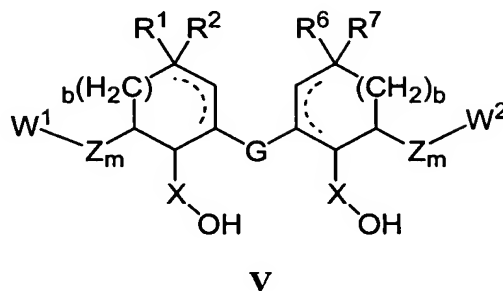
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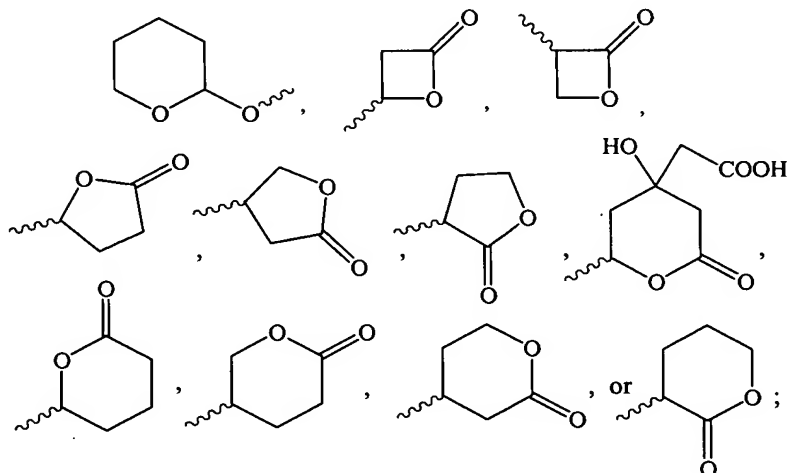


20. A compound of the formula V:



or a pharmaceutically acceptable salt, hydrate, solvate, or a mixture thereof, wherein:

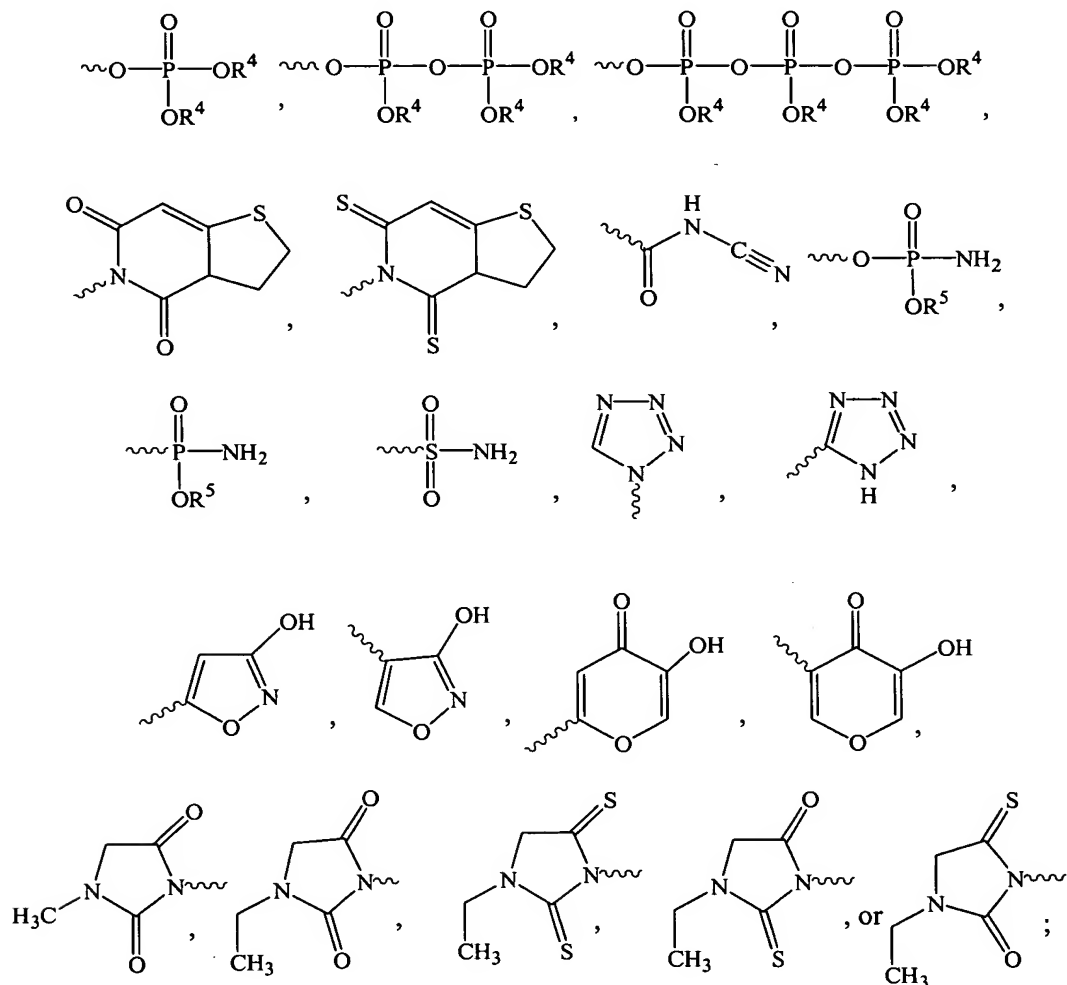
- 5 (a) each occurrence of Z is independently CH<sub>2</sub>, CH=CH, or phenyl, where each occurrence of m is independently an integer ranging from 1 to 5, but when Z is phenyl then its associated m is 1;
- (b) G is (CH<sub>2</sub>)<sub>x</sub>, CH<sub>2</sub>CH=CHCH<sub>2</sub>, CH=CH, CH<sub>2</sub>-phenyl-CH<sub>2</sub>, or phenyl, where x is an integer ranging from 1 to 7;
- 10 (c) W<sup>1</sup> and W<sup>2</sup> are independently C(R<sup>8</sup>)(R<sup>9</sup>)-(CH<sub>2</sub>)<sub>n</sub>-Y, where n is an integer ranging from 0 to 7;



- (d) each occurrence of R<sup>8</sup> and R<sup>9</sup> is independently H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>2</sub>-C<sub>6</sub>)alkenyl, (C<sub>2</sub>-C<sub>6</sub>)alkynyl, phenyl, or benzyl or R<sup>8</sup> and R<sup>9</sup> can be taken together to form a carbonyl group;
- 15 (e) each occurrence of R<sup>1</sup> and R<sup>2</sup> is independently H, (C<sub>1</sub>-C<sub>6</sub>)alkyl, (C<sub>2</sub>-C<sub>6</sub>)alkenyl, (C<sub>2</sub>-C<sub>6</sub>)alkynyl, phenyl, or benzyl or R<sup>1</sup> and R<sup>2</sup> can be taken together to form a carbonyl group or R<sup>1</sup> and R<sup>2</sup> and the carbon to which they are both attached are taken together to form a (C<sub>3</sub>-C<sub>7</sub>)cycloalkyl group;

- (f) each occurrence of  $R^6$  and  $R^7$  is independently H,  $(C_1-C_6)$ alkyl, or  $R^6$  and  $R^7$  can be taken together to form a carbonyl group or  $R^6$  and  $R^7$  and the carbon to which they are both attached are taken together to form a  $(C_3-C_7)$ cycloalkyl group;
- (g) Y is independently  $(C_1-C_6)$ alkyl, OH, COOH, COOR<sup>3</sup>, SO<sub>3</sub>H,

5



wherein:

10

(i)  $R^3$  is  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl,  $(C_2-C_6)$ alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH,  $(C_1-C_6)$ alkoxy, or phenyl groups,

(ii) each occurrence of  $R^4$  is independently H,  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl, or  $(C_2-C_6)$ alkynyl and is unsubstituted or substituted with one or two halo, OH,  $C_1-C_6$  alkoxy, or phenyl groups;

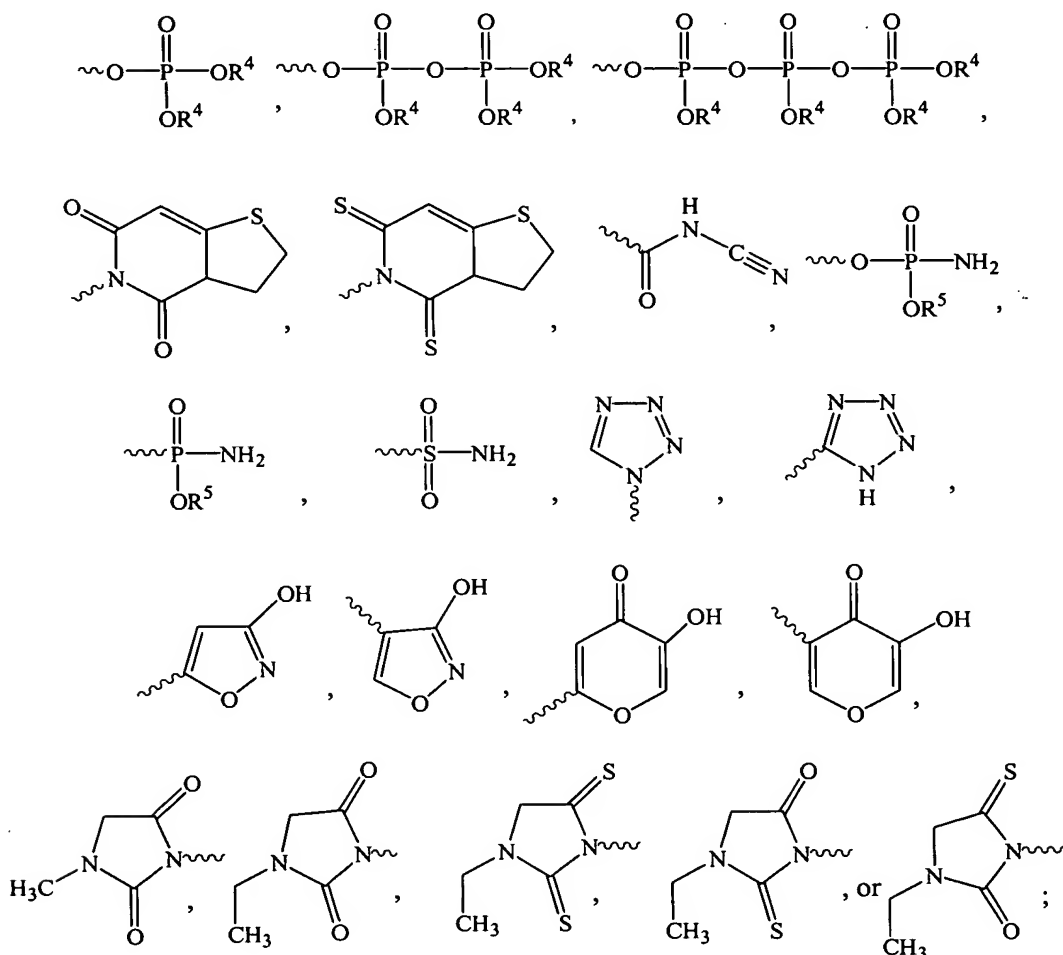
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(iii) each occurrence of  $R^5$  is independently H,  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl, or  $(C_2-C_6)$ alkynyl;



- (d) each occurrence of  $R^1$  or  $R^2$  is independently  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl,  $(C_2-C_6)$ alkynyl, or  $R^1$  and  $R^2$  and the carbon to which they are both attached are taken together to form a  $(C_3-C_7)$ cycloalkyl group;
- (e) Y is  $(C_1-C_6)$ alkyl,  $(CH_2)_nOH$ ,  $(CH_2)_nCOOH$ ,  $(CH_2)_nCOOR^3$ ,  $SO_3H$ ,

5



wherein:

10

(i)  $R^3$  is  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl,  $(C_2-C_6)$ alkynyl, phenyl, or benzyl and is unsubstituted or substituted with one or more halo, OH,  $(C_1-C_6)$ alkoxy, or phenyl groups,

(ii) each occurrence of  $R^4$  is independently H,  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl, or  $(C_2-C_6)$ alkynyl and is unsubstituted or substituted with one or two halo, OH,  $C_1-C_6$  alkoxy, or phenyl groups,

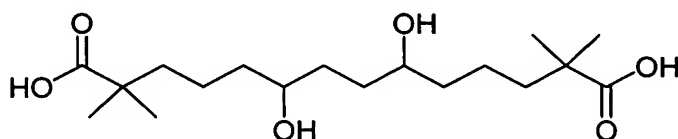
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(iii) each occurrence of  $R^5$  is independently H,  $(C_1-C_6)$ alkyl,  $(C_2-C_6)$ alkenyl, or  $(C_2-C_6)$ alkynyl;

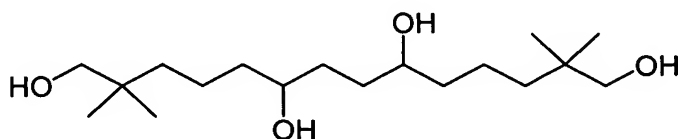
- (f) each occurrence of b is independently 0 or 1; and
- (g) X is  $(\text{CH}_2)_z$  or Ph, wherein z is an integer from 0 to 4.

23. The compound 22, wherein each occurrence of  $W^1$  and  $W^2$  is independently  $\text{C}(\text{R}^1)(\text{R}^2)-(\text{CH}_2)_n-\text{Y}$ , groups and each occurrence of Y is independently OH,  $\text{COOR}^3$ , or  
 5 COOH.

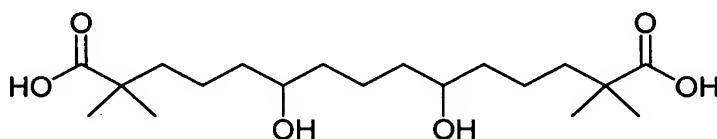
24. A compound of structure:



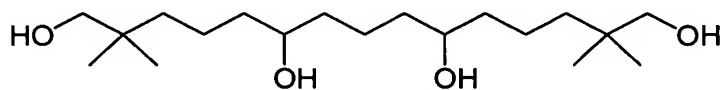
6,9-Dihydroxy-2,2,13,13-tetramethyl-tetradecanedioic acid;



2,2,13,13-Tetramethyl-tetradecane-1,6,9,14-tetraol;



6,10-Dihydroxy-2,2,14,14-tetramethyl-pentadecanedioic acid; and



2,2,14,14-Tetramethyl-pentadecane-1,6,10,15-tetraol.

25. A pharmaceutical composition comprising a compound of claim 1, 8, 17, 19, 20, 22, or 24 and a pharmaceutically acceptable vehicle, excipient, or diluent.

10 26. A pharmaceutical composition comprising a compound of claim 1, 8, 17, 19, 20, 22, or 24 and further comprising a second therapeutic agent.

27. A method for treating or preventing aging, Alzheimer's Disease, cancer, cardiovascular disease, diabetic nephropathy, diabetic retinopathy, a disorder of glucose metabolism, dyslipidemia, dyslipoproteinemia, hypertension, impotence, inflammation, insulin resistance, lipid elimination in bile, obesity, oxysterol elimination in bile, pancreatitis, pancreatitius, Parkinson's disease, a peroxisome proliferator activated receptor-associated disorder, phospholipid elimination in bile, renal disease, septicemia, Syndrome X, thrombotic disorder, modulating C reactive protein, or enhancing bile production in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or propyleutrally effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

28. A method for treating or preventing a cardiovascular disease in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

29. A method for treating or preventing a dyslipidemia in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically, effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

30. A method for treating or preventing a dyslipoproteinemia in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

31. A method for treating or preventing a disorder of glucose metabolism in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

32. A method for treating or preventing Alzheimer's disease in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

33. A method for treating or preventing Syndrome X in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
34. A method for treating or preventing septicemia in a patient, comprising  
5 administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
35. A method for treating or preventing a thrombotic disorder in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19,  
10 20, 22, or 24.
36. A method for treating or preventing a peroxisome proliferator activated receptor associated disorder in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
37. A method for treating or preventing obesity in a patient, comprising  
15 administering to a patient in need of such treatment or prevention a therapeutically or effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
38. A method for treating or preventing pancreatitis in a patient, comprising  
20 administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
39. A method for treating or preventing hypertension in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
40. A method for treating or preventing renal disease in a patient, comprising  
25 administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

41. A method for treating or preventing cancer in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
- 5 42. A method for treating or preventing inflammation in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
43. A method for treating or preventing impotence in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
- 10 44. A method for treating or preventing a neurodegenerative disease or disorder in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
- 15 45. A method of inhibiting hepatic fatty acid synthesis in a patient, comprising administering to a patient in need thereof a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
46. A method of inhibiting sterol synthesis in a patient, comprising administering to a patient in need thereof a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
- 20 47. A method of treating or preventing metabolic syndrome disorders in a patient, comprising administering to a patient in need of such treatment or prevention a therapeutically or prophylactically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.
- 25 48. A method of treating or preventing a disease or disorder that is capable of being treated or prevented by increasing HDL levels, which comprises administering to a patient in need of such treatment or prevention a therapeutically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.



49. A method of treating or preventing a disease or disorder that is capable of being treated or prevented by lowering LDL levels, which comprises administering to such patient in need of such treatment or prevention a therapeutically effective amount of a compound of claim 1, 8, 17, 19, 20, 22, or 24.

5            50. A pharmaceutical composition comprising a compound of claim 1, 8, 17, 19, 20, 22, 24, or 26 and a pharmaceutically acceptable vehicle, excipient, or diluent which is administered in combination with a statin.